
CPR Study Guide for NIH Health Care Providers

Registration is now online at http://dohs.ors.od.nih.gov/cpr_training.htm . For questions or information about which class to take or how to register, contact Juli Egebrecht egebrechj@mail.nih.gov or at the BLS Office phone 301-496-4111.

This study guide was developed to assist you in completing the CPR course, including the required test. The test is a 20 question, multiple choice format with four answer options. This study guide reflects specific wording found in class materials and tests. You should be able to print this directly from your web browser. We have also developed a pdf version. If this does not work, call: 301-496-4111 and we will assist you.

- Class will begin ON TIME. Starting time is 0800 (usually on Mondays, Thursdays, and Fridays) and noon (on Wednesdays) but make sure of time when you register. Classes are held in Building 31 Room B4BN09 which is below the Parking/ID office. Use that bank of elevators to reach B4.
- CPR classes are physically demanding. If you have a medical condition that could be aggravated by performing CPR skills, please consult with your physician and inform the instructor before class so appropriate accommodation can be arranged.
- Remember that your place is held for you only until the starting time. We do allow "walk-ins" and they may "bump" anyone who is late. If the class is full with staff who were on time and the door is locked, you will have to reschedule.
- Please wear comfortable clothing.

CPR Study Guide Sections

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Links in the "Chain of Survival"

■ Adults:

1. Access the EMS - CALL 911; Bldg. 10 call 111; off NIH campus - call 9-911.
2. Early CPR
3. Early Defibrillation
4. ACLS (Advanced Cardiac Life Support)

The greatest impact on improving the survival from adult sudden cardiac arrest is immediate bystander quality CPR and defibrillation within 5 minutes. The adult victim has probably had a heart attack.

■ Pediatric

1. Prevention
2. Early CPR
3. Early access to EMS
4. Early PALS

The most common cause of sudden cardiac arrest in kids (infants and children) is a lack of oxygen to the heart muscle and brain caused by severe breathing emergencies, respiratory arrest, or shock. Trauma is possible, but rare.

The most common cause of death is accidents i.e. motor vehicle trauma, drowning, poisoning, burns, etc.

■ Things to remember about Basic Life Support Occurrence.

It is Sudden and Unexpected. It is usually out-of hospital. Guidelines are for laypeople as well as healthcare providers.

1. Opening the airway is usually done by tilting the forehead and lifting the boney part of the chin. An improperly positioned airway is the most common cause of an airway obstruction. If cervical injury may have occurred, use the Jaw Thrust (give patient an underbite) with pressure behind the ascending portion of the mandible. Stabilize the neck manually rather than using mechanical means if trained to do so.
2. Head tilts:
 - Adult may need to be hyperextended
 - CHILD - NEUTRAL POSITION, SLIGHTLY EXTENDED

- INFANT - NEUTRAL POSITION

Chest compression hand position

- Adult: center of the sternum at the nipple line using heels of 2 hands
- Child: heel of 1 hand on the sternum while maintaining the airway with the other hand or possibly 2 hands if necessary.
- Infant: 2 fingers slightly below the nipple line (1 finger's breadth if small fingers) over the heart. 2 thumbs either next to each other, or one atop the other, while encircling the chest with the hands for 2 rescuer CPR.

Allow the chest to fully recoil after each compression.

The purpose of doing CPR is to provide a flow of oxygen to the heart and brain.

1. Gentle ventilations reduce the chance of gastric distention.
2. Ventilation should cause CHEST to rise.
3. Rescue Breathing (there are signs of circulation) is a quick effective way to provide oxygen to the victim.
4. Signs of Circulation (or lack thereof)
 - Skin blueness (cyanosis) or pallor
 - Body is limp; no flexion or movement
 - No breathing or gasps
 - No pulse (check for no longer than 10 sec.) -Only Healthcare Providers will check for pulse-
5. Rescuers monitor each other's effectiveness: ventilator monitors the compressions, compressor leaves hands lightly on the chest and FEELS the chest rise DURING the ventilations.
6. FBAO (Foreign body airway obstruction)
 - If victim is conscious and is an adult or child, do Abdominal Thrusts with fist at or slightly above the navel until it's successful or they become unconscious. If an infant, us 5 back slaps then 5 chest thrusts (if needed) while you are sitting, until it's successful or they become unconscious.
 - If victim becomes unconscious, or you know from circumstantial evidence that he's choked, check the mouth, remove foreign body if seen and attempt to ventilate.

Assessment Algorithm

1. Check for safety
2. Check for victim's responsiveness
3. Call for "HELP!" (see above)
4. Open airway
5. Look, listen, feel for breathing

6. Attempt 2 breaths
If unable to ventilate:
Reposition the head and attempt again
7. Do compressions
8. Open then check mouth, sweep to remove seen objects
9. Attempt to ventilate, if unsuccessful repeat
10. Pulse present, give gentle, 1 second, rescue breaths
11. Breathing present, turn victim onto the side to maintain the airway (Rescue, or Recovery, Position)

■	Number You Need to Know					
	Age	ADULTS >Puberty		CHILDREN 1-Puberty.		INFANTS <1 yr.
# of Rescuers	1	2	1	2	1	2
Ratio C:V	30: 2	30 : 2	30:2	15:2	30:2	15:2
Rate of Compression	100 compressions/min use heel of two hands		100 compressions/min use heel 1 or 2 hands		at least 100 compressions/min use two fingers or thumbs	
Depth of Compression	1/3 to 1/2 depth of chest		1/3 to 1/2 depth of chest		1/3 to 1/2 depth of chest	
Rescue Breaths	1 q 7 seconds 8-9 per minute		1 q 6 seconds* 10 per minute		1 q 5 seconds* 12 per minute	
Duration of Breaths	1 second given gently		1 second given gently		1 second given gently	

■ Public Access Defibrillation

- PAD programs in communities help ensure rapid access to a defibrillator and that laypersons are trained in AED use.
- Immediate CPR provides a flow of oxygen-rich blood to the heart and brain, "buying time" until defibrillation and improving the victim's chance of survival.
- Automated External Defibrillators are usually brought to the scene while CPR is in progress. Once the unit says "Do not touch the patient" stop CPR and follow the prompts.
- Once AED pads are on the chest DO NOT remove. Compressions can be done while they are in place.